

B3
21. (Twice Amended) The circuit of Claim 27, wherein said first and second MEM switch circuits provide MPMT (multiple-pole-multiple-throw) switching functions.

B4
27. (Amended) An electronically scanned array, comprising:
a linear array of radiating elements;
an array of reflection phase shifters coupled to the radiating elements;
an RF manifold including a plurality of phase shifter ports respectively coupled to a corresponding phase shifter RF port and an RF port; and
a beam steering controller for providing phase shift control signals to the phase shifters to control the phase shift setting of the array of the phase shifters;
and wherein said phase shifters each include:

a plurality of micro-electro-mechanical ("MEM") switches responsive to said control signals to select one of a discrete number of phase shift settings for the respective phase shifter;

a coupler device having first and second RF I/O ports, and in-phase and quadrature ports, and first and second reactance circuits respectively coupled to the in-phase and quadrature ports by first and second MEM switch circuits, said first and second reactance circuits each comprising a plurality of susceptances connected in parallel for terminating said in-phase or quadrature port, and wherein first and second MEM switch circuits select at least one of said plurality of susceptances connected in parallel for each of said first and second reactance circuits to select a phase shift setting, and wherein each of said plurality of susceptances can be selected individually and in parallel combinations.

B5
31. (Amended) An RF reflection phase shifter circuit, comprising:
a coupler device having first and second RF I/O ports, and in-phase and quadrature ports;

*Concluded
BT*

a switch circuit comprising a plurality of single-pole-single-throw (SPST) micro-electro-mechanical ("MEM") switches responsive to control signals, said switch circuit arranged to select one of a plurality of discrete phase shift values introduced by the phase shifter circuit to RF signals passed between the first and second RF ports, said circuits connected to provide a single-pole-multiple-throw (SPMT) or multiple-pole-multiple-throw (MPMT) switch function;

said MEM switch circuit including first and second reactance switch circuits selectively coupling first and second termination reactance circuits respectively to the in-phase and quadrature ports, each said reactance circuit including a plurality of selectable reactance values connected in parallel which are selectable individually and in parallel combinations to select different phase shift values.

Be

33. (Amended) A multi-section RF phase shifter circuit, comprising:

a plurality of reflection phase shift sections connected in series to provide a discrete set of selectable phase shifts to RF signals passed through the circuit, and wherein each reflection phase shift section includes:

a coupler device having first and second RF I/O ports, and in-phase and quadrature ports;

a switch circuit comprising a plurality of single-pole-single-throw (SPST) micro-electro-mechanical ("MEM") switches responsive to control signals, said switch circuit arranged to select one of a plurality of discrete phase shift values introduced by the phase shifter circuit to RF signals passed between the first and second RF ports[, said circuits connected to provide a single-pole-multiple-throw (SPMT) or multiple-pole-multiple-throw (MPMT) switch function];

said MEM switch circuit including first and second reactance switch circuits selectively coupling first and second termination reactance circuits respectively to the in-phase and quadrature ports, each said reactance circuit including a plurality of selectable reactance values connected in